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# Bystander Intervention and Litter Control: Evaluation of an Appeal-To-Help Program

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## Abstract

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Managers of public recreation areas are concerned about increases in vandalism and disregard for regulations and the rights of others by some users. Other than the litter incentive program, none of the approaches for reducing violations have been evaluated or proved effective. The present study evaluated a program to increase involvement of campers in the management of depreciative behavior by reporting violations they witness. Results suggest that users who witness littering will help, by reporting infractions to authorities, dealing with the litterer, or picking up the litter.

Keywords: Appeal to help, public involvement, litter, recreation research, depreciative behavior, bystander intervention, recreation management, experimental analysis.

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## Introduction

A range of depreciative behaviors such as vandalism and theft occurs in recreation settings. Managers and users are concerned over such behavior and its impact on the enjoyment of others, the natural environment, and public and private property (Clark et al. 1971b, Alfano and Magill 1976, Downing and Moutsinas 1978, Driessen 1978, and U.S. Department of the Interior 1978). The USDA Forest Service (1975) reported that vandalism and littering in the National Forests cost taxpayers over \$7 million in 1974. The Bureau of Land Management, with fewer and more widely dispersed facilities, reported that vandalism costs \$250,000 per year (Alfano and Magill 1976). The National Park Service reported 8,251 incidents of crime during 1978, an increase of 6 percent from the previous year (U.S. Department of the Interior 1979). The Seattle, Washington, Parks and Recreation Department estimated that vandalism cost \$236,000 during 1976 (U.S. Department of the Interior 1977). Vandalism and other violations of rules are found throughout the recreation opportunity spectrum, from urban parks to wilderness areas (Clark et al. 1971b, Boston Parks and Recreation Commission 1978, Hendee et al. 1978, and Shafer and Lucas 1978).

Managers have used a variety of strategies to mitigate or prevent vandalism and other rule violations (Clark 1976a, Christensen and Clark 1978). Currently these include site planning, architectural design, construction material specifications, landscape design, education of users, charging fees, increased surveillance, frequent maintenance, and public involvement—as well as adding rules and regulations. Although they are often necessary, rules can contribute to depreciative behavior—particularly if they interfere with users' activities, if users do not understand the reasons for them, or if they are ineffectively communicated. Other than the litter incentive program, where people are rewarded for picking up litter, no strategy has been tested and evaluated for its effect on reducing problem behavior (Burgess et al. 1971, Clark et al. 1972a, Clark et al. 1972b, and Clark 1976b).

Involving the public in the management of depreciative behavior has been identified by users, managers, and researchers as a potential solution to the problem. Ways must be found, however, to identify how and under what conditions users will become involved (Clark et al. 1971a, Clark 1976a, and Flickinger 1976). In the survey by Keep America Beautiful (1968), people reported they would not complain to a litterer or report littering to authorities. Heberlein (1971) found that people would not reprimand their friends for littering. Flickinger's (1976) survey in Ohio found that campers said they would do nothing if they observed littering, but they would report theft or vandalism. Clark et al. (1971b), in a study in Washington, found that campers said they would report witnessed rule infractions immediately. But what people say they will do is not necessarily what they will do (Campbell et al. 1968, Clark et al. 1971a). Regardless of the act witnessed, when actual behavior is observed, people normally do not become involved. In a study of campers in a developed campground, Clark et al. (1971a) found that 90 percent of the depreciative acts produced little or no reaction from witnesses. Controlling rule violations is unlikely unless witnesses can be induced to become involved.

Clinard (1974, p. 35) noted, "Where only the general public or the government is a victim, private citizens are less likely to report the offenses." Noninvolvement is a factor in our entire social system (Latané and Darley 1970).

Why do people say they will intervene, when research shows they do not? They are afraid of retribution, do not know how to report, believe others will report, or do not understand an act is illegal or a

problem. They also may feel they do not have time to get involved, or that it will not make any difference if they do (Bickman et al. 1977). Early teaching not to tattle or snitch on others also seems to play a role. Ways must be found to change noninvolvement into prosocial behavior (also called altruism) to help reduce or control depreciative behavior. There is some evidence that people help others because they believe it is right, regardless of rewards (Berkowitz 1972).

Latané and Darley (1970) suggested that the witness to an illegal act goes through a process of questioning and decision-making: "What's going on? What should I do? Should I take responsibility?" Five distinctive steps characterize this process: 1, person notices something; 2, person interprets the situation; 3, person decides to assume personal responsibility and do something; 4, person decides what to do; and, finally, 5, person engages in the behavior decided upon. The authors suggest that people may not decide not to act, but, rather, refrain from making decisions. They are in a state of conflict over steps 2, 3, and 4.

Baron and Byrne (1976, p. 397-398) noted:

Research on prosocial behavior repeatedly indicated that the indifferent bystander actually is one of several very concerned bystanders trying to figure out what is happening. Among the variables identified as having a positive effect on prosocial behavior, the most pervasive seems to be the ambiguity of the situation. Individuals hesitate to take action when the situation is ambiguous; they are afraid of making a mistake and becoming objects of ridicule. This suggests that society could benefit from educational efforts that expose each of us to varied settings and to the types of emergencies likely to arise there. Another important variable is the perceived responsibility of the bystander—which may simply mean that there is sometimes ambiguity about what to do. That, too, can be taught.



## Procedures

Baron and Byrne point out that minimizing ambiguity may cause users to intervene, which could help mitigate or reduce rule violations in recreation areas. Perhaps users would intervene by reporting an act or speaking to an offender if they were aware of problems in a campground. Would bystander behavior change if they were told that we must all take personal responsibility for the recreational area and told what actions they should take? Heberlein (1971) found that people littered less if they were aware of the consequences and felt responsible for them.

For the purposes of the current study, establishing a link between recognition of the problem and doing something about it was important.

The premise of the study is that non-intervention is caused by uncertainty and ambiguity—not by indifference. It further suggests that a program in which managers ask recreation visitors to report offenses could reduce littering. Visitors, when confronted with depreciative behavior, can learn to ask three key questions: What is going on? Who is responsible for redirecting this antisocial action? What can I do to help?

This study was conducted on weekends from August 6 to September 5, 1977, in a developed campground on the Wenatchee National Forest, Washington. It focused on campers and their reactions to staged littering. Control of rule violations was sought through intervention by campers and reporting of illegal acts to authorities. Because prevention was not a focus of this study, we can only speculate that a similar program could minimize littering, and potential offenders might be deterred by observing other campers intervening with violators.

### Overview of the Study

Camper groups at randomly selected campsites received an appeal-to-help message asking them to report to an authority any illegal acts they witnessed. The message—delivered either by a ranger, a Forest Service volunteer, or a campground host—was either oral or a printed cartoon. Control groups did not receive the message. Two hours after the appeal, littering was staged in view of the subjects, by a man or woman driving past a selected campsite. Two observers following in a second car measured two specific reactions: direct intervention with the litterer and picking up the litter. Ten minutes after the staged littering, a ranger walked through the campground to measure reporting by witnesses. The major dependent variables were reporting, direct intervention, antilittering, and no reaction. Treatments were assigned at random to the campsites. The appeal deliverers and type of litter (soda can or beer can) were assigned to clusters of campsites. The social characteristics and behavior of campers were unobtrusively measured by the appeal deliverers, the litterers, the observers in the second car, and the ranger patrol.

### Study Area

The study area was at Lake Kachess, Cle Elum District, Wenatchee National Forest (fig. 1). During the past decade, this area has been the site of other studies of depreciative behavior — on littering, the nature and extent of depreciative behavior in the campground, and user perceptions of problems and control

strategies (Clark et al. 1971a, Clark et al. 1971b, Clark et al. 1972a). In fact, Lake Kachess has become a case-study area for understanding depreciative behavior in developed campgrounds. The layout of the campground also met special requirements of this study.

The campground has well-developed facilities, which include nature and swimming areas, picnic tables and fire-grills, and six overnight areas. It is heavily used and supervised by on-site rangers.

### Objectives

The nine objectives of the study were:

- To determine camper response to an appeal to help and measure differences in reactions to a rule violation.
- To determine the response of campers to different media (oral appeal and printed flyer).
- To determine the nature and extent of different types of reaction — such as whether campers would report offenses to the ranger, intervene directly, or pick up litter.
- To evaluate two types of reporting: filling out a card and dropping it in the fee box, or reporting directly to the ranger patrol.
- To determine the response of campers to appeals made by a ranger, a volunteer, and a campground host.
- To find out to what extent campers follow through on commitments to report.
- To determine the effects of group size on intervention.
- To examine the effects of selected social, situational, and rule-violation characteristics on intervention.
- To determine the effect of appeals on campers' own behavior in terms of campsite litter, and nails hammered into trees or removed.



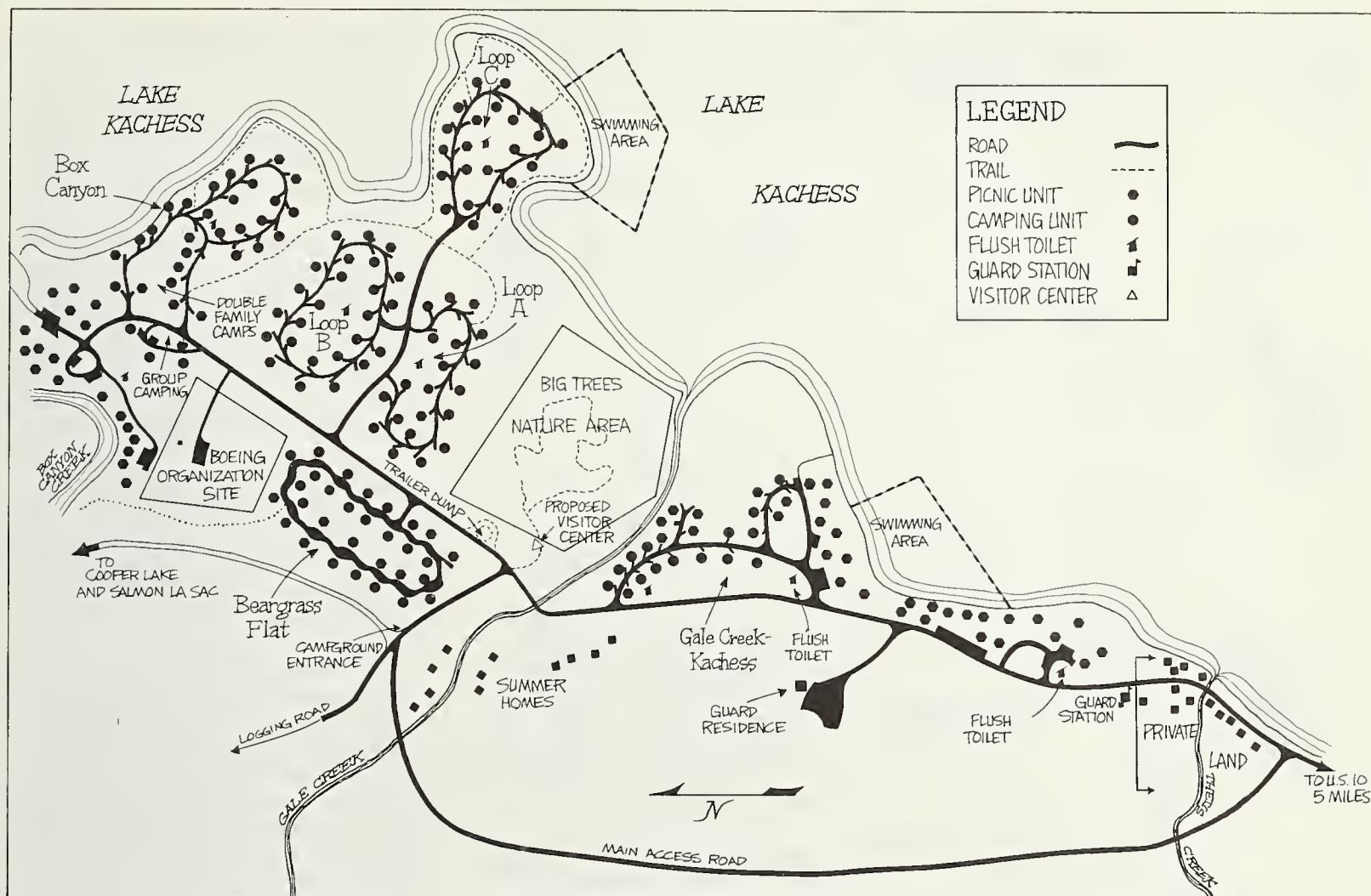


Figure 1.—Lake Kachess Campground, Wenatchee National Forest, Washington.

### Rationale for Selecting Littering as the Illegal Act

Littering was selected as the illegal act to be simulated because it is relatively innocuous and nonthreatening. Measuring natural littering was considered impractical.

Most people perceive littering as illegal. Millions of dollars have been spent on antilitter education, invoking fines, and providing trash cans and litter bags. Research has shown the relative effectiveness of education, litter cans and bags, incentives, and involving the public (Burgess et al. 1971; Clark et al. 1972a, 1972b, 1972c; Clark 1976a, 1976b; Christensen 1978; Muth and Clark 1978). Others have studied the effectiveness of sanctions and signs (Heberlein 1971). No one strategy has solved the litter problem, but, taken together, the strategies make a fairly complete solution possible. This study of public involvement and the appeal-to-help program contributes to the systems approach for litter prevention and control.

### Definition of Terms

Four reactions to witnessed illegal littering were measured: doing nothing (non-intervention); picking up the litter (anti-littering, indirect intervention); reporting (complying with a request for a written or oral report to an authority, indirect intervention); and dealing directly with the offender (direct intervention).



Figure 2.—Printed message distributed to some campers.

### Selection of Subjects

A random sample of clusters and of campsites within a cluster were selected for the study. A cluster included campsites both visible to one another and out of sight. Most campsites could be viewed by campers in from one to three other sites. Each camp loop had 12 to 22 clusters that could be selected. Subjects were a camping party at a campsite. After subject campsites were selected within a cluster, they were randomly assigned to the experimental conditions. Campsites were assumed to be independent of each other, even though samples were drawn in clusters.

Camping parties were assumed to be randomly distributed to campsites. Campers were randomly assigned to receive report cards, oral appeals, printed appeals, or no appeal, or to serve as controls.

### Experimental Controls

A ranger, host, or volunteer visited all campers, so those not in the experiment would not be curious about what was going on, and explained, "We're trying to get an idea of the number of people at the campground this weekend." Each campsite was provided with a litter bag and the children with Smokey-the-Bear fire-prevention balloons or comic books. Information on individual and group characteristics was collected. Then, depending on the group's assignment in the experiment, the ranger/host/volunteer delivered a printed message, an oral message, or no message; passed out report cards; thanked the people; and left.

The control subjects were visited by the authorities as outlined above, but no message was delivered. Their reactions to the staged littering were measured later.

Subjects chosen to receive printed appeals were given cartoon flyers printed on orange paper (fig. 2). They included two major messages: Lake Kachess has problems with violations of rules, such as littering and hammering nails into trees; and, witnesses should report violations to the authorities. The first message was a specific example of telling "What's going on," the second suggested a particular way to deal with the problem. Personal responsibility was implied.



Oral messages were given by the ranger, host, or volunteer as follows:

- We're having problems with rule violations — people on motorbikes, nails in trees, littering, campfires left burning — and we need your help. (The problem.)

- If you see any of these activities or others that concern you, we would really appreciate your letting us know so that we can talk to these individuals, explain the problem, and ask for their cooperation. (Reporting.)

- We would like to encourage everyone to take personal responsibility for reporting problems to us so that we can get a handle on the kinds and frequency of problems and talk with the individuals concerned. (Personal responsibility.)

- So if you see a violation, will you tell me or someone designated who did it? Report the campsite number or car license number and where they went. (Commitment.)

Subjects were asked to spread the word to the rest of their parties, and not to deal with the offender.

Some of the appeals were delivered by a Forest Service ranger (actually a recreation guard or a member of the research team), dressed in the authorized Forest Service uniform.

Some of the appeals were delivered by a volunteer or campground host to determine whether the Forest Service could use volunteers and campground hosts in this capacity. The volunteer was dressed as a camper with a Forest Service volunteer patch on his shirt. Both the host and the volunteer were males and wore nametags that included their titles.

Some campers received 3-by-5 pre-printed cards (see fig. 3) on which to report offenses anonymously. They were told they could drop the cards in the campground fee box or give them to the ranger. Campers who did not receive cards could report rule violations orally.

IF YOU SEE OR HEAR OF A PROBLEM THAT CONCERNS YOU IN THIS CAMPGROUND, COMPLETE THE FOLLOWING. DROP CARD IN FEE BOX OR GIVE TO RANGER.

Reporting date \_\_\_\_/\_\_\_\_/\_\_\_\_.

Time of day \_\_\_\_:\_\_\_\_AM/PM (Circle)

Describe what you have seen \_\_\_\_\_

Location \_\_\_\_\_

Who was involved? \_\_\_\_\_

YOUR CAMP UNIT NO. \_\_\_\_\_ in case Ranger needs further information.

To determine whether campers not in the experiment would report violations, cards were placed in fee boxes at several locations. Signs, which read "Report Violations Here," measuring 8 by 10 inches were placed on bulletin boards adjacent to the fee boxes.

### Study Phases and Measurement Procedures

Each appeal deliverer was randomly assigned a camp area. Assigned areas did not overlap. Appeal deliverers were provided schedules that indicated the place and time to contact campers. All occupied campsites in the camp area were listed and scheduled to receive printed or oral appeals or identified as controls. Appeal deliverers were trained and did not refer to notes in delivering the appeal.

Information gathered about campers included: Style of camping (number of pickup campers and tents); group composition (number of men, women, boys, and girls); problems reported by campers; amount of spoken commitment (number of men, women, boys, and girls who agreed to report offenses); and license numbers of vehicles. (License numbers were also recorded later by the patrol to determine whether the campsite was occupied by same people during all phases of the test.) The appeal deliverer was not in the area during the litter simulation.

Figure 3.—Card for reporting witnessed rule violations.



The second phase of the study was the staged littering. Two hours after appeals began a man and woman in their early 20's drove 2 to 5 miles per hour past the experimental campsite. Loud rock music was played on a cassette recorder in the vehicle to attract attention. One can was dropped on the asphalt pavement in front of the selected campsite. The type of can (beer or soda) had been randomly assigned.

Information gathered by the litterers included: Whether experimental subjects witnessed the staged littering and, if so, who; total number of campers in the camp site; and general activities (camp chores, table and nontable activities). Ten minutes was allocated to the litterers to complete their task and leave the area.

Two observers in a car following about 50 feet behind the litterers' vehicle measured subjects' reactions to the staged littering. The observers drove through the camp area twice. They were not aware which sites had received which kinds of appeal. They used a cassette tape recorder to record their observations; the tape was transcribed immediately after the run.

The observers recorded four reactions to littering:

- Camper looked at the car and did nothing.
- Camper pointed a finger at the litterer or placed hands on hips and faced the litterer.
- Camper spoke to the litterer.
- Camper left the campsite and followed the litterer.

At the end of the first run, the observers immediately re-entered the camp loop and recorded the age and sex of campers, whether the can was picked up by the campers or left on the ground, and the total number of bystanders.

The third phase of the study was the patrol. Ten minutes after the staged littering the Forest Service ranger walked through the camp to determine whether campers would report the littering. The

ranger did not know which sites had received the oral, the printed, or no appeal. She had a schedule indicating the camp area and sites to patrol and a form for recording reports of littering or other problems.

The ranger recorded: Vehicle license numbers; temperature and weather; number of men, women, boys, and girls who observed her on patrol; and camp activities. If more than one activity was going on, all were recorded.

### **Measuring Litter and Nails Before and After Campsite Use**

Litter was measured at unoccupied camp sites on Thursday, and on the following Monday an after-use count was taken. Included in the count were cigarette butts, matches, pull tabs, and anything larger than a quarter. Orange peels and other garbage were excluded. The number of pieces of litter within 4 feet of each campsite's parking pad for vehicles was recorded.

Nails were also counted at unused campsites on Thursdays and Mondays. Nails in all trees within 20 feet of picnic tables, from ground level to 8 feet, were counted.

### **Pretest**

A pretest the weekend before the study began consisted of training the research team in sampling sites, selecting camper subjects, delivering appeals, staging littering, and measuring campers' reactions.

### **Data Base**

At the end of the study, 128 of 215 trials were usable; 87 were discarded because the camper subjects missed one or more of the three stages — the appeal, the staged littering, or the patrol.

In the 128 trials, 40 groups received the oral appeal, 52 the printed appeal, and 36 were controls. A Forest Service ranger

delivered 68 of the appeals, the Forest Service volunteer 15, and the camp-ground host 9. Twenty-seven of the trials (table 1) used report cards, 65 did not, and 36 were controls. (All tables are grouped in the Appendix.)

Campers who received appeals were not always the same ones who witnessed the littering or the patrol. For instance, two people in a party could have received the message while a third person was out of camp, but the third person could have seen the littering while the other two were out of camp. The oral message dealt with this possibility, by asking campers to spread the message to the rest of the party.

### **Reliability**

Reliability checks of the appeal deliverer and patrol observer were conducted one weekend. Interobserver agreement was 97 percent for the appeal deliverer and 95 percent for the patrol observer. The driver and passenger of both cars were in agreement with each other. Reliability measures were determined for counts of litter and nails for 20 campsites. Interobserver agreement was 92 percent for litter and 95 percent for nails.

### **Significance**

Significance levels of .05 are reported in this paper. Discussions, however, sometimes focus on relations that approached significance, but not to the .05 level. Research on bystander intervention is generally in its infancy, and reporting these potentially important relations among variables seems useful. The study was small; with a larger sample size significance would likely be obtained.

### **Characteristics of Sample**

This study included 128 groups of campers consisting of 674 men, women, and children camping together as family, friends, or family and friends. The mean number of people in camping groups witnessing the staged littering was five. Of this group, three were adults and two under age 18.

## Results and Discussion

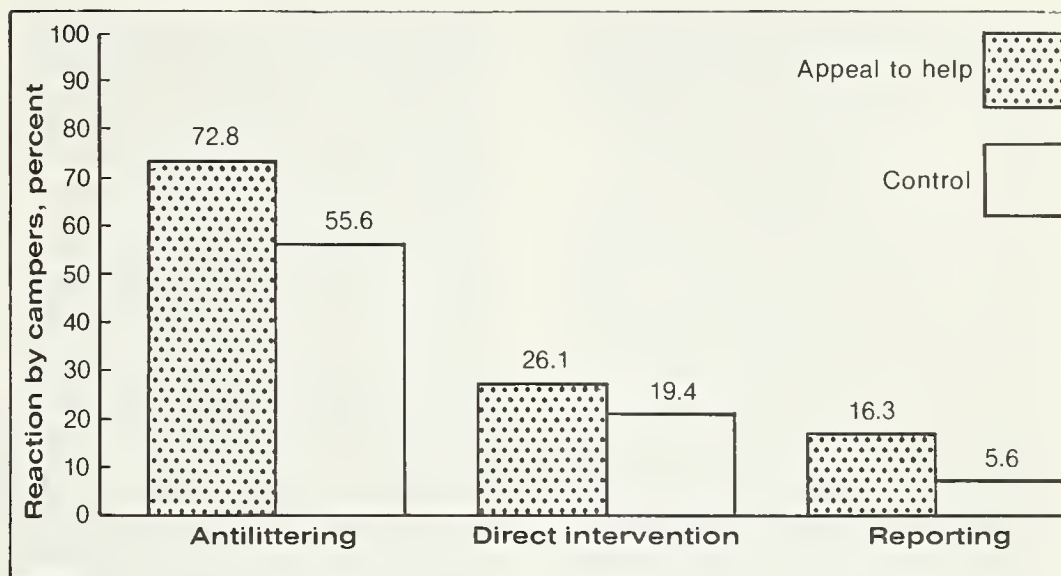
### Nature and Extent of Reaction

A major objective of this study was to determine how an appeal for help affected campers' reactions to a rule violation; how much reaction occurred, and what effect the appeal had on the reaction. Explaining problems with rule violations and suggesting that campers could help by reporting them was expected to increase involvement by campers.

Table 2 summarizes the extent of camper reaction. In over 75 percent of the littering trials, some type of reaction was observed; in 23 percent, campers did not react in any manner.

Table 2 demonstrates a difference in response between the treatment and control groups of 22 percentage points (82.6 versus 61.1 percent). This suggests that appealing for the help of campers does have a significant effect and demonstrates that behavior can be elicited through a particular appeal.

Latané and Darley (1970) developed a model of decisionmaking during an emergency (see page 1 and table 3). The 22-percent difference in behavior in this study apparently demonstrates that defining the problem and suggesting ways to deal with it increased campers' involvement. Other studies have found similar results. Bickman and Green (1977), in their study of shoplifting and reporting behavior, also found that intervention increased when witnesses were educated to take action. Moriarty (1975) and Shaffer et al. (1975) found increased intervention to prevent theft when subjects had been asked to help. Similar results were found by Bickman (1972, 1976), Clark and Word (1972, 1974), and Muth and Clark (1978). We do not know which of the components in the appeal message were effective in changing behavior. The 22-percent difference may be the result of one or a combination of cues to the problem: commitment, personal responsibility, or the influence of the ranger, host, or volunteer. But results indicate that this approach has promise as part of a comprehensive approach to controlling rule violations in recreational settings.



Three types of reaction by campers to staged littering were observed: antilittering (campers immediately picked up the litter and placed it in a garbage can); direct intervention (campers overtly intervened with the litterers); and reporting (campers reported the littering to the ranger) (fig. 4). Campers could react in more than one way; they could pick up a can and also report the violator, or they could pick up the can and deal directly with the litterer.

Picking up the litter was the primary reaction of most campers. The appeal resulted in a 17-percent increase in antilittering behavior (72.8 versus 55.6 percent). But 56 percent of the control group picked up cans without any appeal — not surprising, considering that millions of dollars have been spent on programs to prevent littering. Future studies should determine what campers do when the littering is along a trail designated as community property, compared to this study, where cans were dropped at their own campsites.

Figure 4.—Three types of reactions by 128 camping parties to staged littering after an appeal to help: for antilittering,  $\tau_{ab} = .17$ ,  $p = <.03$ ,  $\gamma = .36$ , n.s.; direct intervention,  $\tau_{ab} = .07$ ,  $\gamma = .19$ , n.s.; reporting,  $\tau_{ab} = .14$ ,  $p = <.05$ ,  $\gamma = .54$ , n.s.

Twenty-six percent of the subjects receiving the appeal intervened directly with the litterers, 7 percent more than the control group. This was an apparent consequence of the appeal. Subjects who intervened directly evidently decided on that action rather than turn the responsibility over to an authority. Also, campers might have preferred to intervene rather than turn the matter over to a female authority (Maier 1970, Broverman et al. 1972). Future research might focus on how sex of the authority figure affects campers' actions.

In 128 trials, 16 percent of the subjects receiving appeals reported the staged littering, 10 percent more than the control group. The appeal to help was an attempt to elicit behavior that some campers might interpret as snitching or tattling, which may explain why only a handful of campers reported the rule violations. It does not suggest that reporting cannot be produced, however. Results of this study demonstrate that campers sometimes will report a violation; but further research is needed to discover ways to increase reporting.



Campers' perceptions of the costs of intervention — such as embarrassment and verbal or physical abuse — may explain the low rate of this type of response. The cost-reward model of intervention (Piliavin and Piliavin 1972, p. 353) states: "As costs for helping increase, the probability of direct intervention decreases and the probability of indirect help increases." Bleda et al. (1976) suggested that reporting shifts responsibility for corrective action to someone who holds a position of authority. Direct intervention requires personal involvement. The data reported here imply that campers perceived direct intervention as less costly than reporting, although direct intervention would appear to be more risky. Possible explanations for this behavior are that reporting to the ranger was not sufficiently convenient or that direct intervention against littering was not considered a high-risk action.

A direct comparison of oral and printed appeals show that they were similarly effective (table 4). In antilittering responses, for instance, the difference was less than one percentage point.

Direct intervention by those who received flyers was only 1.9 percent more than intervention by those who received oral appeals (25.0 versus 26.9 percent). This was expected, however, because the flyer did not refer to dealing with the litterer; it only asked campers to report violations. The lower rate of direct intervention by campers who received oral appeals may be explained by the fact that they were specifically told *not* to deal with the offender but to report violations to the ranger.

Littering was reported by 20 percent of the campers who received the oral appeal and 13.5 percent of those who received the printed appeal. The difference of 6.5 percentage points may be explained by the method of the appeal. The deliverer of oral appeals interacted longer with the subjects, because the explanation took longer than handing out printed flyers. The difference in response to oral and printed messages might also be explained by the fact that some campers may not have read the flyer.

The role of the person who delivered the appeal to campers was expected to affect the behavior of camping groups. Determining the relative effectiveness of the ranger, Forest Service volunteer or camp ground host is important for administrative purposes. Two rangers were used in the study, both female — the recreation guard at Lake Kachess campground and a researcher dressed in a ranger uniform. Only female rangers and male volunteers were used, not male rangers or female volunteers; thus, any effects related to sex cannot be differentiated.

Among subjects who received the anti-litter appeal from a volunteer, 86 percent responded in some way to the illegal act, but only 44 percent of the control group reacted — a difference of 42 percentage points (table 5). This suggests that trained volunteers, such as members of citizen-band radio clubs or 4-wheel drive clubs, could be used in such a program.

The recreation guard delivered appeals during the normal course of her duties. Nearly 90 percent of the campers who received an appeal from her reacted to the littering compared to 82 percent of the subjects who received an appeal by a researcher in ranger uniform. No differences between commitment to report a problem and reporting were found.

In past research, group size has been a major variable in explaining bystander intervention. Several studies have shown that intervention decreases as the number of witnesses to an event increases (Latané and Darley 1968, Latané and Rodin 1969). As the number of bystanders increases, the responsibility felt by any one individual to help decreases — responsibility is diffused — an individual does not bear 100 percent of it. When the bystander is alone, the probability of action increases. But Piliavin et al. (1969) have demonstrated the opposite effect; that is, intervention increases as the number of people witnessing the event increases, possibly because they feel there is safety in numbers. They demonstrated that reaction is less in groups of up to five witnesses than with groups of more than five. Morgan (1976, 1978) suggested that responsibility at one point may be diffused but, as the number of witnesses increases, the probability that some individual will intervene increases.

Table 6 summarizes the effects of group size on reaction. More reaction was observed when a camper was alone than when three or more campers witnessed the staged littering. The findings of the present study on group size seem to support Latané and Darley (1968) and other studies that found less reaction as the number of witnesses increased.

The tendency to report littering was also affected by size of camping party (table 7). When the camping party was small, 30 percent of the subjects reported the littering, but only 5 percent of campers in groups of six or more reported. Small groups appear more likely to turn problems over to authorities rather than deal directly with them. No relations were found between group size and direct intervention and antilitter behavior.

Table 8 summarizes reactions of subjects according to the number of other occupied campsites in their view. What effect would other campers (strangers) have on a subjects' reactions? Is a camping party inclined to react more when strangers are around? Reaction by subjects increased as the number of sites occupied by strangers in view of the subjects' campsites increased. When no strangers were watching, reaction was observed in only 73 percent of the trials, but reaction was observed in all trials where three or more nearby sites were occupied.

Campers' reactions to staged littering are summarized as follows:

- Earlier studies found that campers did nothing and were passive bystanders to rule violations. In this study, some type of reaction by campers occurred in 77 percent of all littering trials.
- The three types of reactions were: Campers picked up the staged litter; campers directly intervened with the litterers; and campers reported violations to the ranger. Many campers reacted in more than one way.



- Appeals made to campers by the ranger, campground host, or Forest Service volunteer apparently increased campers' reactions: picking up litter by 17 percent, reporting littering by 11 percent, and intervening directly with the litterer by 7 percent. Overall, the appeal changed 22 percent of the behavior because users could have reacted in more than one way.

- The appeal was equally effective when delivered orally or as a cartoon flyer.

- The male Forest Service volunteer was the most effective appeal-deliverer, but effects of role were not separable from those of sex.

- As the number of witnesses to the staged littering increased, reactions to the rule violation decreased. Similarly, larger camping parties reported the littering less frequently. Reactions increased as the number of occupied sites nearby and visible to the subjects increased, however.

## Reporting

Thirteen percent of 128 acts of littering were reported during the course of this study (table 9).<sup>1</sup> The difference in reporting by treatment (16.3 percent) and control (5.6 percent) groups suggests that the appeal to help changed 10 percent of the reporting behavior (fig. 4). Other problems, such as illegal use of vehicles and chainsaws were also reported by campers not included in either experimental or control groups.

Violations other than the staged littering were reported in only 7 percent of the sample (table 9). Some campers reported both unstaged violations and staged littering. Illegal behavior reported included: speeding in a car, driving a motorcycle through the campground, driving a motorcycle without a muffler, driving a vehicle on plants; illegal use of chainsaws in the campground; making noise; and a swimming-boating conflict at the beach. Litterers other than the two in the study were not reported.

<sup>1</sup> Twenty-six subjects reported the staged littering or other violations. Two reported the littering both during the patrol and later with a written card. One used only the report card.

All of the illegal behavior was reported while the authority was delivering the appeal (table 9), and over half was reported by campers receiving spoken appeals. Oral appeals produced more contact with campers and allowed more time for subjects to express their concerns. Also, the appeal to report was given at a time the authority was available to take reports.

Campers not given cards had the opportunity to report littering only during the patrol 10 minutes after the staged littering. In 20 percent of trials campers without cards reported the violation to the patrol (table 10).

Campers with cards had three opportunities to report: orally to the ranger; with a filled-in card to the ranger; or with a card in the fee box. Only 10 percent of the staged littering was reported on cards. Of the nine campers given cards, only three wrote reports, and two of these also reported orally. Most subjects given the opportunity to fill in report cards preferred to report orally to the ranger, perhaps because telling the ranger was simply more convenient or perhaps reporting directly enhanced their self-esteem. People are apparently more likely to report problems if a ranger is present. Thus, the presence of a ranger seems important.

Campers not in the sample could report problems on cards available at the campground fee box. Of 173 camping parties not in the sample, 3.5 percent used the card to report problems. One party complimented management on the nature area.

Most of the reporters were adult males. Although they reported 30 percent of the violations, they reported only staged littering (table 11).<sup>2</sup> Twenty-six percent of the time, male and female adults responded together, mostly about unstaged illegal behavior. In fact, all rule violations were reported orally by adults. Reporting by children focused on the staged littering. Children knew littering was illegal; some of them asked what would be done if the culprit were apprehended, and some immediately picked up the thrown can and took it to the ranger. The

<sup>2</sup> A total of 26 cases reported. Data displayed in the table include only oral reports. The other three reports were made on cards.

person patrolling always answered the children's questions, overtly disapproved of the litterers' behavior, and thanked the children for picking up the cans.

People mentioned make and color of vehicle in half the reports concerning automobiles. License numbers were reported less frequently (table 12).<sup>3</sup> The following examples of reports indicate the need to be fairly specific in telling people what to report: An adult male reported, "A little red car littered here . . . should have taken the license number . . . should have picked up the can." Another adult male added questions and comments to his report: "A red Pinto littered here, license number Washington . . . young blonde did it . . . What is the fine? What do you do? . . . male and female were in the car . . . they should have stayed in the city." A woman and boy reported: "A green-moss (moss green?) car passed by and threw a beer can in front of our campsite . . . car load of people. We don't want to be identified for fear they'll come back and get us."

Nineteen percent of the morning trials were reported but only 11 percent of the afternoon trials and 6 percent of the evening trials were reported (table 13). Higher rates of response in the morning might be expected because campers were generally in camp; activities were usually quiet—eating breakfast, drinking coffee, or playing table games. In the afternoon, however, most people were at the beach, hiking, or boating. Still fewer trials were reported during the evening when activities such as socializing, eating, and playing were prominent. Reporting apparently increases when more people are in camp and activities are passive.

Beer and soda cans were randomly selected for littering each camp area. Each area tested received all beer cans or all soda cans. More reports were made (16.7 percent) when beer cans were used. If campers differentiated between beer and soda cans, they may have perceived beer cans as more objectionable. Or, campers may have perceived

<sup>3</sup> Nineteen of the reports involved automobiles; 17 were vehicles used in the study; and the other two were involved in other rule violations.



beer drinkers who tossed cans as rowdy types likely to cause trouble, and wanted to prevent more offensive acts. Contacting the ranger when a can was tossed may have seemed a way to short-circuit trouble. This raises questions that could be asked about other rule violations. For example, does reporting by campers depend on the nature of the offense? Might campers report the theft of a Smokey Bear sign and not report the carving of a picnic table?

The sex of the litterer may also have influenced the tendency to report the violator. Two people staged the littering — a man and woman. The female litterer was reported more often than the male, which tentatively supports earlier findings by Bleda et al. (1976). Fifteen percent of the trials with the female were reported, but only 11 percent with the male (table 13). One possible explanation for this difference, according to previous studies (Chesney-Lind 1973, 1974), is that females are not expected to perform such blatant acts and should not be allowed to get away with them. Also, the perceived costs of reporting the female's behavior may be lower because the threat of retaliation is less.

Briefly, major findings of reporting behavior were:

- Staged littering was reported in 13 percent of the trials and other illegal behavior in 7 percent. Some campers reported both types of behavior.
- Campers usually reported unstaged illegal behavior when the ranger was describing problems with rule violations and asking for help. Staged littering was reported predominately during the patrol.
- Only three parties in the sample turned in cards.
- Male adults or men and women together did most of the reporting. Men reported the staged littering, but both men and women reported other illegal behavior.

- Campers who reported automobile violations tended to give color and make of the vehicles, but not license numbers.

- More violations were reported during the morning trials when camp activities were passive than during afternoon or evening trials when competing activities took precedence.

### Direct Intervention

Some type of direct intervention was observed in 24 percent of the 128 trials. Appeals for help apparently changed 7 percent of the behavior (fig. 4). Three types of direct intervention by men and women were observed (table 14): Physical gestures (pointed fingers, placed hands on hips, or nodded heads); words; or following the litterer to the camp entrance, and talking to him or her. Some campers reacted in more than one way.

If a man reacted, he usually said something (table 14), such as: "Hey, pick up that can;" "Hey, knock that off;" "Dummy . . .;" "Hey, come get that back;" or "Get their license number." Some campers followed the litterers. In one instance, three men chased the offenders and told them, "Take your beer can with you . . . find a garbage can."

Women intervened less frequently than men. When they did, the response was usually spoken: "You pick up that can;" "Somebody threw a can;" or "Litterbugs!" Children were rarely observed dealing with the litterers and were excluded from the analysis. If boys did anything, they responded in words. Responses by children were in the presence of adults.

The type of can thrown was found to influence intervention (table 15). More intervention occurred when beer cans were used (33.3 percent) than when soda cans were used (12.5 percent). Similarly, littering with beer cans was reported more often. Campers may feel beer cans are more objectionable than soda cans.

The male litterer produced higher intervention rates (29.1 percent) than the female (20.5 percent). This differs from the reporting response, where littering by the female produced a higher reporting rate than littering by the male.

Direct intervention by campers was evaluated according to style of camping — that is, whether they used more than one type of recreational unit, such as a trailer and tents; a pickup camper and tents; or two pickup campers and trailer (table 16). More intervention was observed in trials at sites with multiple camping styles (38.9 percent) than at sites with one type of vehicle or tent (21.4 percent).

Intervention was also influenced by whether campsites were single or double (table 16). Trials at double campsites where more than one party was camped produced higher intervention rates than trials at single campsites. Double campsites also imply larger groups.

Major findings on direct intervention can be summarized as follows:

- Nearly one-quarter (24 percent) of the camping parties dealt directly with the litterer. The appeal apparently produced a 7-percent increase in direct intervention.
- Three types of intervention were found: physical gestures, spoken expressions, and following the litterer.
- Although both men and women intervened, men responded more frequently and usually by speaking; women also reacted by speaking, but less frequently than men. Children rarely intervened.
- More intervention occurred when a beer can was thrown than when a soda can was thrown.
- More intervention came from sites with more than one vehicle and from sites with more than one style of camping. This may imply there is safety in numbers and intervention increases with the size of camping party. More reporting was done by small camping parties, suggesting that small parties may prefer to turn matters over to authorities.



How costs of intervening were perceived is unclear. The major reaction was to pick up the can, a low-cost reaction that poses little or no threat. Reporting the problem to an authority could be perceived as a medium-cost reaction. Direct intervention was expected to be the high-cost reaction, and less direct intervention than reporting had been expected. But direct intervention occurred more (24 percent) than reporting (13 percent). Does this mean campers perceive direct intervention as less threatening than reporting? This seems unlikely. Explanations may depend on the nature of the offense, age of the offenders, and the number of offenses. Direct intervention may be preferred when the illegal act is littering, but not if it is throwing a knife at a tree, for example.

The age of the offenders may also be a determinant. Adults might intervene if children are the offenders, but not when other adults commit a violation. The number of offenders may also be a determinant. A witness might intervene with one offender, but not with three or four. Appearance and sex of the offender may also be a determinant.

A major implication is that, for reasons of safety, managers should not encourage users to deal directly with offenders.

### Antilittering

Picking up staged litter was the most frequent response. Over two-thirds was picked up (68 percent). Direct intervention and reporting littering occurred less frequently. The effect of the appeal appeared to be significant and responsible for a 17-percent change of behavior (fig. 4).

Sex of the litterer was the only variable related to picking up litter (table 17). Cans from trials with female litterers were picked up more often (74 percent) than from trials with male litterers (60 percent).

The appeal did help with the problem of littering. But did campers generalize the message and apply it to others situations by, for example, policing their own sites? Litter and nails were measured in campsites before and after use. Nearly half (43 percent) of the sites showed decreases in litter; 33 percent of the sites remained the same (table 18). Counts of nails in trees remained the same in about 75 percent of the sites. Campers' reactions (direct intervention, reporting, or anti-littering) were subdivided with campers' litter counts. The data show that regardless of reaction to staged littering more campers picked up their own campsite litter than contributed to it. For instance, among campers who directly intervened, 38.1 percent more picked up their own litter than contributed to it (table 19). Of those who reported the littering, 28.6 percent more picked up their own litter than added to it. Campers who picked up the staged litter also picked up their own campsite litter (90.5 percent).

These findings suggest that campers, seeing the staged littering and reacting in one or more ways, later realized that the campground really had a littering problem and cleaned up their own campsites. They may also see picking up campsite litter as low-cost, helping behavior.

Antilittering activities can be summarized as follows:

- Over two-thirds of the staged litter was picked up. The appeal to help changed behavior among 17 percent of the experimental group.
  - More cans discarded by female litterers were picked up than those discarded by males.
  - The majority of campers who reacted to the staged littering also cleaned up their own sites; this suggests that the appeal was generalized by users to other situations. But the number of nails in trees was not reduced, possibly because campers were not aware of them or the damage they cause.
- Such reporting programs may control some current problems and prevent others. They have several benefits:
- They may deter a potential rule violator out of fear of being caught or being reported by a witness.
  - They may reach people who do not recognize certain actions as being deprecative. Persons reported can be told by rangers what the campground problems are and asked for their cooperation. This strategy can help generate skills and behaviors needed in recreation settings. Research has demonstrated that contact with rangers is perceived by campers as positive.
  - They can help control problems with individuals or groups who purposely commit violations, by identifying rule violators so authorities can remove them from the area.

The study showed that when an appeal to help was delivered, most campers were willing to become involved. The most frequent response was to pick up the litter; direct intervention was less frequent; reporting to authorities was least. Involvement by campers may be related to the perceived costs and benefits of direct intervention. Previous research has indicated that response may depend on the nature of the offense. For instance, campers have reported that they would directly intervene with a litterer but would report a vandal (Clark et al. 1971b). If the offense is innocuous, like littering, campers apparently prefer to intervene directly. Intervention may depend on the number, ages, and appearance of offenders, and other unidentified factors.

Efforts to educate the public to intervene or to report are not new. Reporting programs began in the early 1960's. Examples of current campaigns are: "Next time you see someone polluting, point it out" (Keep America Beautiful); "Report Vandalism" (Washington State Highway Department); and "Rat on a Rat" (Washington Bankers Association and Washington Savings League). Similar reporting programs relate to hunting and fishing violations.

Such reporting programs may control some current problems and prevent others. They have several benefits:



- They inform managers of offenses previously unreported, giving a better assessment of the extent and nature of depreciative behavior.

- They reduce impacts on the natural environment on both public and private property, reduce the impact on fiscal resources, and increase users' satisfaction and enjoyment of areas.

A reporting program must be conducted with a positive attitude. Recreational visitors are willing to become involved; managers and researchers need to find appropriate ways to channel that involvement. Some general guidelines can be listed for managers considering an appeal-to-help program:

- Campground users must be informed why reporting is needed and the costs of rule violations in terms of damage to facilities and natural resources. If users fail to perceive the seriousness of carving initials in a table or throwing knives at trees, they are not likely to report such violations by others.

- Users must be told what kinds of information to report, such as the offender's campsite number or vehicle license number.

- Users must be told how to report by filling out a card at the campground fee box, by informing the ranger on patrol, or in a letter or telephone call to the appropriate authorities.

- Reporting must be convenient; rangers or report boxes in campgrounds must be accessible. In this study, reporting orally to the ranger was more convenient than filling out the report card and depositing it in the box. Boxes were from 25 feet to more than 1,000 yards from campsites. Parties that reported by card were camped from 143 to 350 yards from the boxes. Further tests are needed to determine whether campers will report on cards in the absence of a ranger.

- Protecting the identity of witnesses may be necessary to minimize fear of retaliation and potential risks.

Several steps are required to initiate a system for reporting by recreation users.

### STEP 1. ASSESS THE PROBLEM and DECIDE ON A TARGET LOCATION

What is the problem? How serious is it? Where does it occur?

### STEP 2. DETERMINE THE AUDIENCE

Is the program to be geared to individuals, groups, or both? People with special interests?

### STEP 3. EDUCATE THE USERS

*A. Tell users why their help is needed.* How serious is the problem? What are its financial, resource, and social impacts? What other consequences might these violations have—closures, increased fees, more laws and restrictions?

*B. Tell users what to report.* Should they report any person or group behaving suspiciously? Should they watch for specific violations only? What details should the report include—campsite number, license number, trail number, description of the rule violator?

*C. Tell users how to report and to whom.* Reporting must be convenient. Some alternatives are by citizenband radio, report card, in person, telephone call, or letter.

Media for educating users include television, radio, signs, car stickers, brochures, newspapers, presentations at environmental programs, and personal appeals by rangers, fire-patrol persons, or other representatives.

No one program will control or prevent problem behavior. A systems approach, with empirical testing of the effectiveness of different programs, is needed. This study tested the effectiveness of one approach: appealing to witnesses to report violations. Many questions remain. Costs and incentives need to be identified. Literature on this subject is scant, but a recent study by Bickman and Helvig (1979) found that anonymity and monetary rewards had no effect on reporting. They found that subjects did not expect rewards for doing their duty. Researchers might identify the nature and extent of reporting for various types of violations and determine whether appeals need to be targeted or can be generalized. Additional testing is needed on media for appeals.

More research of this type is needed on other strategies with the potential for reducing and controlling depreciative behavior. What kinds of site designs deter vandalism? Why? Evaluative research is an effective tool for testing the strengths and weaknesses of different approaches to control and prevention.

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## Appendix

Table 1—Number of cases<sup>1</sup> for experimental conditions (N = 128)

Appeal deliverer	Without cards		With cards	
	Oral appeal	Printed appeal	Oral appeal	Printed appeal
Ranger	20	21	15	12
Forest Service volunteer	5	10		
Forest Service campground host	0	9		
Control	36			

<sup>1</sup>A case is a camping party at a campsite.

Table 2—Effect of an appeal to help on users' reaction to rule violation

Reaction of campers	Treatment (appeal to help)	Control	Total
<i>Percent</i>			
Reaction (Direct or in- direct inter- vention)	82.6	61.1	76.6(98) <sup>1</sup>
No reaction (Noninterven- tion)	17.4	38.9	23.4(30)
Total	100.0(92)	100.0(36)	100.0(128) <sup>2</sup>

<sup>1</sup> Numbers in parentheses indicate number of trials.

<sup>2</sup>  $\tau_{ab} = .23$  significant at .005 level;  $\gamma = .50$ ,  $\chi^2 = 5.52(1)$  significant at .02 level. Several measures of association are used in this paper. Both gamma and tau coefficients will be reported with some tables. Tau is considered a more reliable measure of association and does not tend to inflate a relationship, as gamma has a tendency to do. Gamma is preferred by many readers, however, and both measures will be reported (Blalock 1972). Gamma and taus are measures of association that describe the strength of the relation between two variables; they describe the degree to which the values of one variable vary with the values of another variable. Both the values of one variable vary with the values of another variable. Both the tau and gamma vary from 1.0, a positive relationship, to -1.0, a negative relationship. Zero defines situations in which variables are completely unrelated. Ordinal-level measurement is required for both variables except in instances where dichotomous variables are tested, as was the case here.

Table 3—Bystander intervention process: Analogy between perspectives of subject and investigator

Stage <sup>1</sup>	Investigator	Subject
2	Describe problem	Become aware of problem
3	Appeal to decide to take personal responsibility	Consider taking and decide to take responsibility
4	Suggest a way to minimize or mitigate problem	Become aware of or be reminded of a way to mitigate problem
1	Simulate littering (delay until stages 2, 3, and 4 completed)	Observe littering
5	Observe intervention among those to whom it has been suggested	Intervene

<sup>1</sup> Stages are those described by Latané and Darley 1970, described on page 1 of this paper.

Table 4—Reactions and percent responses to different types of appeals

Type of reaction by campers	Type of appeal (N = 128)		
	Oral (N = 40)	Printed (N = 52)	Control (N = 36)
	<i>Percent</i>		
Antilittering <sup>1</sup> (N = 128)	72.5 <sup>2</sup> (40) <sup>3</sup>	73.1 (52)	55.6 (36)
Direct intervention <sup>4</sup> (N = 128)	25.0 (40)	26.9 (52)	19.4 (36)
Reporting <sup>5</sup> (N = 128)	20.0 (40)	13.5 (52)	5.6 (36)

<sup>1</sup> Cramers V = .17, n.s. Cramers V is a measure of association describing the strength of a relationship between two variables. It assumes that both variables are measured at the nominal level and ranges from 0 to +1.

<sup>2</sup> To obtain percent of trials in which subjects who received the oral message did not pick up the litter, subtract 72.5 from 100.0 percent.

<sup>3</sup> Numbers in parentheses indicate total number of trials with oral message.

<sup>4</sup> Cramers V = .07, n.s.

<sup>5</sup> Cramers V = .16, n.s.



Table 5—Type of appeal deliverer and percentage of trials in which campers reacted to littering

Appeal deliverer	Treatment (N = 92)	Control (N = 36)
	<i>Percent</i>	
Forest Service ranger <sup>1</sup> (N = 22)	89.5 (19)	66.7 (3)
Researcher in ranger uniform <sup>2</sup> (N = 74)	82.0 (50) <sup>3</sup>	66.7 (24)
Volunteer <sup>4</sup> (N = 23)	85.7 (14)	44.4 (9)
Forest Service campground host (N = 9)	66.7 (9)	

<sup>1</sup> Eta = .23, n.s. Eta is a measure of association that describes the strength of a relation between two variables. Eta ranges from 0, no relationship, to + 1, a positive relationship. The dependent variables must be interval or ratio level and the independent variable must be nominal.

<sup>2</sup> Eta = .17, n.s.

<sup>3</sup> Numbers in parentheses indicate total number of trials.

<sup>4</sup> Eta = .43, n.s.

Table 6—Relation of campers' reactions to the number of party members witnessing the littering

Reaction of campers	Number of party members witnessing the littering			
	Camper alone	Two witnesses	Three or more witnesses	Total
	<i>Percent</i>			
No reaction	18.7	21.2	27.3	24.3(28)
Reaction	81.3	78.8	72.7	75.7(87)
Total	100.0(16)	100.0(33)	100.0(66)	100.0(115) <sup>1</sup>

<sup>1</sup> Tau<sub>c</sub> = -.07, n.s.

Gamma = -.17, n.s.

Table 7—Relation of reporting behavior to size of camping party

Behavior	Size of camping party			Total
	0 - 2	3 - 5	6 or more	
	<i>Percent</i>			
Did not report	69.6	87.3	95.2	86.7(111)
Reported	30.4	12.7	4.8	13.3(17)
Total	100.0(23)	100.0(63)	100.0(42)	100.0(128) <sup>1</sup>

<sup>1</sup>  $Tau_c = -.17$  significant at .003 level.  $\Gamma = -.57$ ,  $\chi^2 = 8.54(2)$  significant at .01 level.

Table 8—Relation between reaction and the number of other occupied sites in view

Reaction of subjects to staged littering	Number of other occupied sites in view				Total
	None	1	2	3 or more	
	<i>Percent</i>				
No reaction	26.7	21.9	18.2	0.0	20.3(15)
Reaction	73.3	78.1	81.8	100.0	79.7(59)
Total	100.0(15)	100.0(32)	100.0(22)	100.0(5)	100.0(74) <sup>1</sup>

<sup>1</sup>  $Tau_c = .11$ , n.s.  $\Gamma = .26$ , n.s.

Table 9—Types of problems, how and when reported

Reporting	N	Percent
Problems reported		
Staged littering	17	13.3
Unstaged violations	9	7.0
Did not report	102	79.7
Number of trials	128	100.0
How and when problems are reported		
Unstaged violations reported orally during appeal	9	32.0
Staged littering reported orally during patrol	16	57.0
Staged littering reported in writing during the patrol or by card in box	3	11.0
Number of trials	28	100.0



Table 10—Types of reporting systems and to whom campers reported

Reporting system	N	Percent
Oral report to patrol		
Reported staged littering	8	20.0
Reported unstaged violations	1	2.5
Did not report	31	77.5
Number of trials	40	100.0
Card		
Reported staged littering	9	10.2
Reported unstaged violations	8	9.1
Did not report	71	80.7
Number of trials	88	100.0
To whom campers reported	N	Percent
Oral report		
To ranger	24	85.6
To campground host	1	3.6
Written report		
To ranger	1	3.6
To campground host	1	3.6
To fee box	1	3.6
Number of trials	28	100.0

Table 11—Characteristics of the reporters

Age group and sex	N	Percent
Male adult	7	30.4
Female adult	4	17.4
Male child	1	4.4
Female child	3	13.0
Male and female adults, together	6	26.1
Female adult and male child, together	2	8.7
<hr/>		
Total number of trials reported orally	23	100.0

Table 12—Reports of violations that involved automobiles

Reports	N	Percent
Make of vehicle		
No	8	42.1
Yes	11	57.9
<hr/>		
Color of vehicle		
No	6	31.6
Yes	13	68.4
<hr/>		
License number		
No	16	84.2
Yes	3	15.8
<hr/>		
Number of violations involving automobile	19	100.0



Table 13—Relation of reporting behavior to selected rule-violation variables

Reporting	Variable			
	TIME OF OFFENSE			
	<u>Morning</u>	<u>Afternoon</u>	<u>Evening</u>	<u>Total</u>
Did not report	81.1	88.6	93.5	86.7(111)
Reported	18.9	11.4	6.5	13.3(17)
Total	100.0(53)	100.0(44)	100.0(31)	100.0(128) <sup>1</sup>
	TYPE OF CAN			
	<u>Beer</u>	<u>Soda</u>	<u>Total</u>	
Did not report	83.3	91.1	86.7(111)	
Reported	16.7	8.9	13.3(17)	
Total	100.0(72)	100.0(56)	100.0(128) <sup>2</sup>	
	SEX OF THE LITTERER			
	<u>Male</u>	<u>Female</u>	<u>Total</u>	
Did not report	89.1	84.9	86.7(111)	
Reported	10.9	15.1	13.3(17)	
Total	100.0(55)	100.0(73)	100.0(128) <sup>3</sup>	

<sup>1</sup>  $Tau_c = -.11$  significant at .05 level.  $\Gamma = -.37$ , n.s.

<sup>2</sup>  $Tau_b = -.11$ , n.s.  $\Gamma = -.34$ , n.s.

<sup>3</sup>  $Tau_b = .06$ , n.s.  $\Gamma = .18$ , n.s.

Table 14—Nature and extent of intervention by male and female adults

Type of response	Men		Women	
	N	Percent	N	Percent
Physical gesture				
1 adult	3	96.9	2	1.6
2 adults	1	2.3	0	0
No reaction	124	.8	126	98.4
Number of trials	128	100.0	128	100.0
Spoken reaction				
1 adult	15	11.7	5	3.9
2 adults	3	2.3	0	0
No reaction	110	86.0	123	96.1
Number of trials	128	100.0	128	100.0
Followed offender				
1 adult	2	1.6	2	1.6
2 adults	2	1.6	1	.8
3 adults	1	.7	0	0
No reaction	123	96.1	125	97.6
Number of trials	128	100.0	128	100.0



Table 15—Relation between direct intervention and selected rule-violation variables

Intervention	Variable		
	TYPE OF CAN		
	<u>Beer</u>	<u>Soda</u>	<u>Total</u>
Did not intervene	66.7	87.5	75.8(97)
Intervened	33.3	12.5	24.2(31)
Total	100.0(72)	100.0(56)	100.0(128) <sup>1</sup>
	SEX OF THE LITTERER		
	<u>Male</u>	<u>Female</u>	<u>Total</u>
Did not intervene	70.9	79.5	75.8(97)
Intervened	29.1	20.5	24.2(31)
Total	100.0(55)	100.0(73)	100.0(128) <sup>2</sup>

<sup>1</sup>  $Tau_b = -.24$ , significant at .003 level.  $\Gamma = -.56$ ,  $\chi^2 = 6.36(1)$  significant at .01 level.

<sup>2</sup>  $Tau_b = -.08$ , n.s.  $\Gamma = -.23$ , n.s.

Table 16—Relations between direct intervention and selected situational variables

Intervention	Variable		
	STYLE OF CAMPING		
	<u>Single</u>	<u>Multiple<sup>1</sup></u>	<u>Total</u>
Did not intervene	78.6	61.1	76.0(92)
Intervened	21.4	38.9	24.0(29)
Total	100.0(103)	100.0(18)	100.0(121) <sup>2</sup>
	DESIGN OF CAMPSITE		
	<u>Single</u>	<u>Double</u>	<u>Total</u>
Did not intervene	79.2	59.1	75.8(97)
Intervened	20.8	40.9	24.2(31)
Total	100.0(106)	100.0(22)	100.0(128) <sup>3</sup>

<sup>1</sup> "Multiple" implies more than one type of equipment and may also imply larger groups.

<sup>2</sup>  $Tau_b = .15$  significant at .05 level.  $\Gamma = .40$ , n.s.

<sup>3</sup>  $Tau_b = .18$  significant at .02 level.  $\Gamma = .45$ , n.s.

Table 17—Relation of antilittering to sex of the offender

Behavior	Male	Female	Total
Did not pick up litter	40.0	26.0	32.0(41)
Picked up litter	60.0	74.0	68.0(87)
Total	100.0(55)	100.0(73)	100.0(128) <sup>1</sup>

<sup>1</sup>  $Tau_c = .15$  significant at .05 level.  $\Gamma = .31$ , n.s.

Table 18—Change in litter and nail counts at campsites

Change	N	Percent
Litter		
Increase	12	24.5
Decrease	21	42.8
Remained the same	16	32.7
Total	49	100.0
Nails in trees		
Increase	7	20.6
Decrease	1	2.9
Remained the same	26	76.5
Total	34	100.0



Table 19—Relation of reactions to campers' litter behavior

Reactions by campers	Change in campsite litter			Total
	Pieces of litter increased	Pieces of litter decreased	No change	
Direct intervention				
Did not intervene	75.0	61.9	93.7	75.5(37)
Directly intervened	25.0	38.1	6.3	24.5(12)
Total	100.0(12)	100.0(21)	100.0(16)	100.0(49) <sup>1</sup>
Reporting				
Did not report	91.7	71.4	93.7	83.7(41)
Reported	8.3	28.6	6.3	16.3(8)
Total	100.0(12)	100.0(21)	100.0(16)	100.0(49) <sup>2</sup>
Antilittering				
Did not pick up staged litter	25.0	9.5	37.5	22.4(11)
Picked up staged litter	75.0	90.5	62.5	77.6(38)
Total	100.0(12)	100.0(21)	100.0(16)	100.0(49) <sup>3</sup>

<sup>1</sup>  $\text{Tau}_c = -.18$ , n.s.  $\text{Gamma} = -.37$ , n.s.

<sup>2</sup>  $\text{Tau}_c = -.05$ , n.s.  $\text{Gamma} = -.13$ , n.s.

<sup>3</sup>  $\text{Tau}_c = -.13$ , n.s.  $\text{Gamma} = -.27$ , n.s.



Christensen, Harriet H.

1981. Bystander intervention and litter control: Evaluation of an appeal-to-help program. USDA For. Serv. Res. Pap. PNW-287, 25 p. Pac. Northwest For. and Range Exp. Stn., Portland, Oreg.

Managers of public recreation areas are concerned about increases in vandalism and disregard for regulations and the rights of others by some users. Other than the litter incentive program, none of the approaches for reducing violations have been evaluated or proved effective. The present study evaluated a program to increase involvement of campers in the management of depreciative behavior by reporting violations they witness. Results suggest that users who witness littering will help, by reporting infractions to authorities, dealing with the litterer, or picking up the litter.

Keywords: Appeal to help, public involvement, litter, recreation research, depreciative behavior, bystander intervention, recreation management, experimental analysis.



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